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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,838	03/22/2001	Joannes Baptist Adrianus Dionisius Van Zon	PHN 17,557	7507

7590

01/08/2003

Philips Electronics North America Corporation  
580 White Plains Road  
Tarrytown, NY 10591

EXAMINER

WILLE, DOUGLAS A

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 01/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/787,838

Applicant(s)

VAN ZON, JOANNES BAPTIST  
ADRIANUS DIONI

Examiner

Douglas A Wille

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-47 is/are pending in the application.
- 4a) Of the above claim(s) 10-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 33-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of claims 33 – 47 is noted and Applicant's traversal of the restriction requirement is incorrect since the search of different classes is a burden and the restriction requirement is made final.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 34 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 34 refers to the mass of the non-magnetic element as being lighter than the mass of the metallic element but such is not described in the specification.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. The claim refers to the mass of one element as being lighter than another but lightness refers to a weight and mass is distinct from weight.

***Claim Rejections - 35 USC § 102***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claims 33 - 35, 43 and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Gallagher et al.
8. With respect to claim 33, Gallagher et al. show (see cover figure and column 3, line 55 et seq.) a MTJ with a first electrode 10, an insulating layer 20 and a second electrode 30 where the second electrode does not cover all of the insulating layer.
9. With respect to claim 34 the insulating layer is non-magnetic and is  $\text{Al}_2\text{O}_3$  (column 5, line 1). Note that the 1 - 2 nm insulating layer is covered with a 8 nm Co layer and a 20 nm Pt layer.
10. With respect to claim 35, layer 18 is NiFe which is a soft-magnetic material.
11. With respect to claims 43 and 44, Gallagher et al. show a protective layer 40 of  $\text{SiO}_2$ , which is an insulating material, on the insulating layer.

***Claim Rejections - 35 USC § 103***

12. Claims 36 - 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallagher et al.
13. With respect to claim 36 - 41, Gallagher et al. show that layers 10 and 30 can be reversed (column 5, line 37) which leaves a soft layer on the bottom and a hard and a soft layer on the top. Thus the soft layer 18 is a basic layer and 16 is the hard antiferromagnetic layer. It would have been obvious to invert the structure as a design option since the effect is the same.
14. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gallagher et al. in view of Konno.

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15. Konno shows (see column 3, line 10 et seq.) a magnetic sensor with an artificial lattice film with Fe layer, a silver layer, another Fe layer and a Ni layer. It would have been obvious to use this artificial lattice in place of the inverted layer 16 as a design alternative since it shows improved sensitivity (see abstract).

16. Claims 45 - 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallagher et al. in view Ruigrok et al.

17. With respect to claim 45, Gallagher et al. show a basic sensor but do not show a complete device. Ruigrok et al. show a field sensor with a yoke to couple the device to the field. It would have been obvious to include the yoke shown by Ruigrok et al. in the Gallagher et al. device to provide functionality.

With respect to claims 46 and 47, since the structure shown by Ruigrok et al. is mechanically unstable (the end at 5 is unsupported) it would have been obvious to include an encapsulant at least in the space between 3a and 3b to stabilize the structure. Note that the Ruigrok et al. structure has a gap 3a' which would be filled with the encapsulant.

### *Conclusion*

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

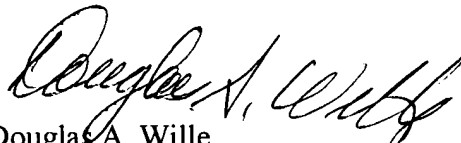
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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A Wille whose telephone number is (703) 308-4949. The examiner can normally be reached on M-F (6:15-2:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmi can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Douglas A. Wille  
Patent Examiner

January 2, 2003